METHOD AND SYSTEM FOR APPROVING A PASSWORD

FIELD OF THE INVENTION

5   The present invention concerns a method as
defined in the preamble of claim 1 and a system as de-
fined in the preamble of claim 5 for approving a pass-
word.

BACKGROUND OF THE INVENTION

10   It is a generally known practice to use a
user identifier and a corresponding password as a key
to accessing information systems. This improves the
safety of information systems and prevents information
from being accessed by parties for which it is not in-
15   tended. A password is a given string which is used to
identify a user who logs in to a system by giving
his/her user identifier.

The person maintaining the information system
may make a definition in the user identification sys-
20   tem requiring that special characters be included in
all passwords. Special characters are symbols not in-
cluded in the basic alphabet. The use of special char-
acters further improves data security because the
larger the choice of characters for a password, the
25   larger will be the number of character combinations to
try and the more difficult will it be to break up the
password.

In certain MMI systems (MMI, Man Machine In-
terface), a separate user profile is created for each
30   user. The user profile defines e.g. which MML commands
the user is authorised to execute, and it is associ-
ated with the user name. When the user issues a com-
mand, the system checks whether the session in ques-
tion has the authority to execute that command.

35   In the above-mentioned user identification
system, a problem is that the use of special charac-

ters in a password is either optional or obligatory
for all users. However, in many information systems,
it would be important to require of certain users that
they use longer passwords including special charac-
5   ters. Such passwords are more difficult to break up.
At present, it is not possible for a person maintain-
ing a user identification system to define which users
are required to include more special characters in
their passwords than others.

10   The object of the present invention is to
eliminate the drawbacks described above or at least to
significantly alleviate them.

        A specific object of the present invention is
to disclose a new type of method and system for ap-
15   proval of a password corresponding to a user identi-
fier.

BRIEF DESCRIPTION OF THE INVENTION

        In the method of the present invention for
20   approving a password in a user identification system,
in which the user identifier is associated with a user
profile, a definition is made for each user profile,
specifying whether the password should include special
characters. Special characters are characters belong-
25   ing to a predefined subset in a total range of charac-
ters, which includes all available characters. Accord-
ing to the invention, data indicating whether the
password should include a character belonging to a
predefined subset of the total range of characters is
30   added to the user profile.

        In an embodiment of the method, data indicat-
ing the minimum number of characters belonging to a
predefined subset in the total range of characters is
added to the user profile. In this case, the user must
35   use a password containing at least the minimum number
of special characters. The number of special charac-

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ters is preferably verified in the user identification system.

In an embodiment of the method, when a user changes his/her password, a check is performed before
5 approval of the new password to verify whether the password contains at least the required number of characters belonging to a predefined subset in the total range of characters.

The system of the invention for approving a
10 password in a user identification system in which a user identifier is associated with a user profile comprises an information system which a user can only access if the user identification system approves the user on the basis of the user identifier and password.

15 According to the invention, the user identification system comprises means for adding to the user profile a data item indicating the presence in the password of a character belonging to a predefined subset in a total range of characters. The total range of
20 characters comprises all the available characters.

In an embodiment of the system, the user identification system comprises means for adding to the user profile a data item indicating a required minimum number of characters belonging to a predefined
25 subset in the total range of characters. Means for comparing and verifying the number of characters belonging to a predefined subset in the total range of characters that are present in the password and the number of characters required in the user profile are
30 preferably comprised in the user identification system.

Further, the system preferably also comprises means for checking the password to verify whether it contains the required number of characters belonging
35 to a predefined subset in the total range of characters before a new password is approved when the password is to be changed.

The invention improves the data security of a
MM1 system for those users whose user profile includes
a setting requiring the use of many special charac-
ters. At the same time, for users who are only enti-
5   tled to execute MM1 language commands of the lowest
levels, a user profile can be set that does not re-
quire the use of special characters. This makes the
password easier to remember and allows easier and
faster access to the system.

10   The invention gives the person maintaining
the user identification system a chance to decide
which ones of the users are required to use special
characters in their passwords and which ones are not.

15   LIST OF ILLUSTRATIONS

In the following, the invention will be desc-
ribed in detail by the aid of a few examples of its
embodiments, wherein
Fig. 1 presents an embodiment of the system
20   of the invention, and
Fig. 2 presents a block diagram illustrating
the operation of the embodiment according to Fig. 1.

DETAILED DESCRIPTION OF THE INVENTION

25   The system illustrated in Fig. 1 comprises a
user interface 11 serving as a means of controlling an
information system 12. The user of the user interface
must have the authority to access the information sys-
tem. This authority is checked in a user identifica-
30   tion system 13, where the user is asked to give a user
identifier and a password. A preferred system for the
embodiment in this example is the Nokia DX 200 tele-
phone switching system, which has an MM1 user inter-
face and uses commands that are entered in the MM1
35   language. These means 11, 12, 13 are implemented in a

manner known in itself and they will therefore not be
described here in greater detail.

The user identification system 13 comprises
means 1 for adding to the user profile a data item in-
5   dicating a character belonging to a predefined subset
in the total range of characters. A data item indicat-
ing a minimum number of characters belonging to a pre-
defined subset in the total range of characters is
added to the user profile using means 2. Moreover, the
10   user identification system comprises means 3 for modi-
fying the user profile when the password is changed
and means 4 for finding the required number of charac-
ters belonging to a predefined subset in the total
range of characters before the password is approved.
15   In the case of the example, these means 1, 2, 3, 4 are
implemented via software.

In the following, the events in the example
will be described step by step with reference to the
operational block diagram in Fig. 2.
20   The user is asked to give a user identifier,
which he/she enters via the user interface 11, block
21. The user identification system 13 verifies whether
the user identifier entered has been stored in the
user identification system, block 22. If the user
25   identifier entered is unknown, then the procedure will
go on to block 29, where the user is presented an er-
ror message and user identification is terminated. If
the user identifier is found, then the procedure will
be continued.

30   The user identification system 13 identifies
the user profile by the user identifier and retrieves
the stored information corresponding to the user pro-
file, block 23. Based on this information, the user
identification system knows the password corresponding
35   to the user identifier, the length of the password and
the minimum number of characters belonging to a prede-
fined subset in the total range of characters that the

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password should contain. This subset comprises e.g.
numeric characters or all special characters. In the
case of the example, the subset consists of all the
characters defined in the ITU-T (ITU-T, International
5   Telecommunications Union - Telecommunications) stan-
dard IA5 (IA5, International Alphabet no. 5), in the
following ranges: 21H - 40H, 5BH - 60H and 7BH - 7EH.

Further, the user is asked to enter the pass-
word corresponding to the user identifier supplied via
10 the user interface 11. The user enters the password,
block 24, whereupon the user identification system 13
checks the properties of the password, block 25. If
the password entered differs from the password corre-
sponding to the user identifier, i.e. from the one
15 stored in the user identification system, then the
user is given an error message and the identification
process is terminated, block 29. Alternatively, the
user may be given a few more chances to enter the
password before the identification process is ended.
20 If the password is correct, then the system checks
whether the number of special characters in the pass-
word is as required in the user profile, block 26.

If the password does not contain the required
minimum number of special characters, then the user
25 will be asked to change the password so as to give it
an acceptable form, block 27. After the user has
changed his/her password, it will be checked again,
block 26.

If the password meets the requirements im-
30 posed by the user identification system and the user
profile, then a direct connection between the user in-
terface 11 and the information system 12 will be set
up from the user identification system 13, block 28.
After this, the user identification system will not
35 necessarily interfere with the connection in any way.
However, e.g. the user's authority to execute certain
MM1 commands may depend on the user profile.

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In a system as presented in the example, a change of password can also be implemented in a way differing from the procedure presented in the example. For instance, the password characteristics required by the user profile may only be checked when the password is changed, in which case the user can retain his/her old password even if it does not meet the requirements imposed by the user profile, until he/she decides to change the passwords him/herself.

The invention is not restricted to the examples of its embodiments described above, but many variations are possible within the scope of the inventive idea defined in the claims